Appendix D: Stag Mountain Allotment Actual Use and Utilization

Table D1: Stag Mountain KEY AREA SM-01 MATRIX (Stone Flat Field)							
Range Site: R025XY014NV, Loamy10-12" P.Z. Key Species: Thurber Needlegrass (STTH2); Bluebunch wheatgrass (AGSP) Utilization Objective: 50% for STTH2 and AGSP							
Year	Actual Use AUMs	Period of Use	KA Util (%)	Date Read	Pre-CAF Capacity (AUMs)	CAF[4]	Post-CAF Capacity (AUMs)
2014	636 Cattle	8/9-10/9	STTH2 35% AGSP 27%	10/29/14	909	0.99	918
2013						0.68	
2012	2248[1] Cattle allotment total; Cattle use not defined by pasture	4/1-10/31	FEID 2% AGSM 5%	7/16/12		0.72	
2011	0 Cattle					1.68	
2010	563 Cattle	5/5-7/15				1.02	
2009	0		Fire Closure			1.39	
2008	0		Fire Closure			0.97	
2007	0		Fire Closure			0.80	
2006			Key area burned			1.46	
2005						1.67	
2004	2945 Yearling Cattle (2209[1] cow/calf)	5/6-6/30				0.90	
2003	2071 Cattle	4/25-5/31	STTH2 34% AGSP 14%	10/9/2003	3046	0.94	3240
2002	3650 Cattle	4/1-6/10				1.01	
2001	2687 Cattle	5/1-6/30				0.72	
2000	762 Cattle	9/16-10/15				0.82	
1999	3518 Cattle	5/28-8/2	STTH2 41% AGSP 35%	11/30/99	4290	1.28	3352
1998	2682 Cattle	6/1-8/3	STTH2 35% AGSP 30%	11/10/98	3831	1.50	2554
1997	3014 Cattle	4/26-7/31	STTH2 18% AGSP 21%	11/25/97	7176	1.47	4882
1996	2371 Cattle 94 Sheep	5/14-7/6 6/23-6/29 8/26-8/31	STTH2 28% AGSP 27%	7/31/96	4325[2]	1.32	3277
1995	3378 Cattle 108 Sheep	4/26-9/7 6/15-6/22 8/27-9/2	STTH2 42% AGSP 48% Use patterns show lt/mod in east, north central heavy, Hvy/Severe near Beaver Crk. in the west.	11/7/95	3631	1.54	2358
1994	1910 Cattle 86 Sheep	5/24-8/17 6/13-6/17				0.75	

Appendix D: Stag Mountain Allotment Actual Use and Utilization

		8/28-9/3					
1993	2066 Cattle 36 Sheep	5/31-8/19 8/28-9/1	STTH2 36% AGSP 50%	9/2/93	2102	1.33	1580
1992	2163 Cattle 94 Sheep	4/7-6/30 6/11-6/17 8/27-9/1	STTH2 61%	8/25/92	1815[2]	0.76	2388
1991	3644 Steers (2733 cow/calf)[1] 122 Sheep	5/8-7/12 6/17-6/23 8/21-8/27	STTH2 39% AGSP 33%	9/10/91	4828 (w/steers) 3660[1] (w/cow-calf)	0.72	6706 (w/steers) 5083[1] (w/cow-calf)
1990	542 Yearling Cattle (407 cow/calf)[1] 0 Sheep	5/13-6/20	STTH2 3% AGSP 5%	7/13/90	5420 (w/yearlings) 4065[1] (w/cow-calf)	1.05	5162 (w/yearlings) 3871[1] (w/cow-calf)
1989	1702 Cattle 200 Sheep	6/20-9/3 6/9-6/16 8/24-9/6	STTH2 48%[3] AGSP 40%[3]	10/18/89	1981	1.03	1923
1988	2439 Cattle 59 Sheep	7/18-10/31 8/25-8/30	STTH2 24% AGSP 13%	4/26/89	5204	0.82	6346
1987			STTH2 26% AGSP 20%	11/13/87		0.96	
Average	**2,156[1] cow/calf & 100 sheep** **2,256 Total**				**3,541[1] (cow/calf & sheep)**		**3,213[1] (cow/calf & sheep)**

[1] There is a rule of thumb that yearling cattle consume about 75% of the amount of forage consumed by cow/calf pairs. When there was use by steers or yearlings, those AUMs were reduced by 25% to also arrive at an equivalent for cow/calf pairs. Most of the years of use were by cow/calf pairs; therefore, converting the steer and yearling AUMs to cow/calf equivalents provided a more direct comparison when evaluating the carrying capacities between years, and calculating the averages. The actual use from 2012 was not included in the average actual use. The capacity calculation for cow/calf pairs doesn't take into account the tendency for steers/yearlings to distribute more widely especially in mountainous terrain.

[2] In some years, there was livestock use after the date when the utilization data were collected. In those cases, the AUMs of actual use for calculating the carrying capacity included only those AUMs used to the date the utilization data were collected.

[3] Data taken from a summary page in the monitoring file, but field data sheet not found.

[4] CAF is a climate Adjustment Factor that is used in an effort to normalize data to what would be expected in a median precipitation year. Please refer to Appendix 8K for details.

Appendix D: Stag Mountain Allotment Actual Use and Utilization

Table D2: Stag Mountain KEY AREA SM-02 MATRIX (McIntyre Field)							
Range Site: R025XY012NV, Loamy Slope 12-16" P.Z. Key Species: Idaho fescue (FEID); bluebunch wheatgrass (AGSP) Utilization Objectives: 50% for FEID and AGSP							
Year	Actual Use AUMs	Period of Use	KA Util (%)	Date Read	Pre-CAF Capacity (AUMs)	CAF[3]	Post-CAF Capacity (AUMs)
2014	2115 Cattle 459 Sheep	7/2-10/21 6/13-7/14	FEID 51% AGSP 13%	10/29/14	2524	0.96	2629
2013						0.74	
2012	2248[2] Cattle allotment total; Cattle use not defined by pasture. 689 Sheep	 6/2-8/24	FEID 16% AGSP 5%	7/16/12		0.75	
2011	510 Cattle 544 Sheep	8/1-10/15 6/7-8/24				1.66	
2010	0 Cattle					1.01	
2009			Fire Closure			1.33	
2008			Fire Closure			1.05	
2007	54 Sheep	6/24-6/29	Fire Closure			0.85	
2006	611 Cattle	5/13-8/31	Key area burned			1.46	
2005						1.50	
2004	4290 Yearling Cattle (3218[2] cow/calf)	7/1-10/10				0.99	
2003	5766 Cattle 1099 Sheep	6/1-9/30 6/6-9/12	FEID 40% AGSP 34%	10/9/03	8581	0.92	9327
2002	4119 Cattle	6/1-8/16				1.00	
2001	1963 Cattle 686 Sheep	7/1-8/13 6/4-7/15				0.75	
2000	4497 Cattle 618 Sheep	4/25-9/20 6/24-7/15 8/29-9/30				0.84	
1999	3042 Cattle 1119 Sheep	8/3-10/25 4/25-7/10 8/23-8/25	FEID 53% AGSP 48%	11/30/99	3925	1.24	3165
1998	2506 Cattle 664 Sheep	8/4-10/24 4/30-9/14	FEID 27% AGSP 23%	11/10/98	5870	1.40	4193
1997	3065[1] Cattle 900 Sheep	8/1-9/20 6/1-7/11 8/9-9/15	FEID 16% AGSP 12% FEID 51% AGSP 46%	8/5/1997 11/25/97	3887	1.47	2644
1996	2897 Cattle 460 Sheep	7/5-9/3 6/9-9/8	FEID 62% AGSP 57% Use patterns show heavy use in lower drainages with upper areas	11/13/96	2707	1.29	2098

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			light/moderate use				
1995	1598 Cattle 588 Sheep	5/31-8/6 5/22-7/6 8/16-9/18	FEID 39% AGSP 26% Use patterns show slight use on south half, and lt/moderate on north half	11/21/95	2803	1.45	1933
1994	892 Cattle 416 Sheep	5/27-8/11 5/24-6/28 9/4-9/18				0.77	
1993	2635 Cattle 1095 Sheep	6/14-8/2 5/21-9/18	FEID 60% AGSP 41% Lower end of pasture lt/moderate, but drainages hvy/severe	11/8/93	3108	1.33	2337
1992	3277 Cattle 1222 Sheep	6/21-11/8 5/14-9/16				0.69	
1991	3949 Steers (2962[2] cow/calf) 1334 Sheep	6/10-8/4 5/13-9/14	FEID 60% AGSP 57%	9/20/91	4403 (w/steers) 3580[2] (w/cow-calf)	0.79	5573 (w/steers) 4532[2] (w/cow-calf)
1990	1478 Yearling Cattle (1109[2] cow/calf) 1478 Sheep	6/18-8/23 5/11-9/15	FEID 50% AGSP 45%	9/27/90	2956 (w/yearlings) 2587[2] (w/cow-calf)	1.00	2956 (w/yearlings) 2587[2] (w/cow-calf)
1989	4521 Cattle 1154 Sheep	5/15-9/14 5/11-9/12				1.09	
1988	4960 Cattle 1433 Sheep	7/18-12/15 5/11-9/15				0.82	
1987	1190 Sheep	5/14-9/17				0.85	
Average	**2,800 cow/calf 914 sheep 3,714 Total**				**3,957 cow/calf & sheep**		**3,545 cow/calf & sheep**

[1] Actual use report stated that additional use was made by stray cattle coming into the pasture from adjoining grazing allotments.

[2] There is a rule of thumb that yearling cattle consume about 75% of the amount of forage consumed by cow/calf pairs. When there was use by steers or yearlings, those AUMs were reduced by 25% to also arrive at an equivalent for cow/calf pairs. Most of the years of use were by cow/calf pairs; therefore, converting the steer and yearling AUMs to cow/calf equivalents provided a more direct comparison when evaluating the carrying capacities between years, and calculating the averages. The actual use from 2007 and 2012 were not included in the average actual use. The capacity calculation for cow/calf pairs doesn't take into account the tendency for steers/yearlings to distribute more widely especially in mountainous terrain.

[3] CAF is a climate Adjustment Factor that is used in an effort to normalize data to what would be expected in a median precipitation year. Please refer to Appendix 8K for details.

Carrying Capacity Analysis

The formula used to calculate the grazing/carrying capacity is as follows:

$$\frac{\textit{Actual Use (AUMs) x Utilization Objective}}{\textit{Recorded Utilization}} = \textit{Grazing Capacity}$$

The BLM has standardized the utilization objective for the key native grass species at 50% of current year's growth. The BLM believes this level of use to be compatible with achievement of the land use plan objectives and standards for rangeland health, and establishes a consistent objective across the Stag Mountain Allotment. Recorded utilization is taken from data collected at key areas. The calculated carrying capacities for each year that data were available, and the average for all the years, can be found in Table 3 below.

Average actual use for the Stone Flat Pasture was 2,256 AUMs ranging from a low of 407 AUMs (542 yearling AUMs) to a high of 3,650 AUMs. The average calculated carrying capacity, based on utilization data collected at Key Area SM-01, is 3,541 AUMs (Pre-CAF) with the carrying capacity calculations ranging from a low of 909 AUMs to a high of 7,176 AUMs. The Post-CAF average calculated capacity is 3,213 AUMs; however, the differences in calculated carrying capacities between years varies considerably, ranging from 918 AUMs to 6,346 AUMs, which indicates there are other variables affecting the carrying capacity calculations that the CAF doesn't take into account.

Average actual use for the McIntyre Pasture was 3,718 AUMs ranging from a low of 611 AUMs to a high of 6,865 AUMs. The average calculated carrying capacity, based on utilization data collected at Key Area SM-02, is 3,957 AUMs (Pre-CAF) with the carrying capacity calculations ranging from a low of 2,524 AUMs to a high of 8,581 AUMs. The Post-CAF average calculated capacity is 3,545 AUMs; however, the differences in calculated carrying capacities between years varies considerably, ranging from 1,933 AUMs to 9,327 AUMs, which indicates there are other variables affecting the carrying capacity calculations that the CAF doesn't take into account.

Most of the years of data for the McIntyre Pasture would have included use in the Wendy's Exclosure area before it was fenced after the 2001 Stag Fire. There is insufficient information on actual use and utilization to analyze carrying capacities for just Wendy's Exclosure, or for the Chevelier Exclosure and Horse Pasture.

In general, the actual use and calculated carrying capacities vary substantially over the evaluation period, and there doesn't seem to be a strong grouping of annual calculated capacities around the average. Certainly carrying capacity varies between above normal precipitation years and below normal precipitation years; however, attempting to normalize the calculations to the median precipitation year using the CAF still results in considerable variability. Thus, if we select a carrying capacity for establishing the active AUMs of livestock use to be permitted in the future,

we may want to include some level of flexibility. Collection of additional data, especially use patterns, may help with future analysis.

Table D3: Calculated Carrying Capacities

Year	Stone Flat Pasture SM-01		McIntyre Pasture SM-02	
	Pre-CAF	Post-CAF	Pre-CAF	Post-CAF
2014	909	918	2524	2629
2013				
2012				
2011				
2010				
2009				
2008				
2007				
2006				
2005				
2004				
2003	3046	3240	8581	9327
2002				
2001				
2000				
1999	4290	3352	3925	3165
1998	3831	2554	5870	4193
1997	7176	4882	3887	2644
1996	4325	3277	2707	2098
1995	3631	2358	2803	1933
1994				
1993	2102	1580	3108	2337
1992	1815[2]	2388		
1991	3660[1]	5083[1]	3580[1]	4532[1]
1990	4065[1]	3871[1]	2587[1]	2587[1]
1989	1981	1923		
1988	5204	6346		
1987				
Average	**3,541**	**3,213**	**3,957**	**3,545**

[1] These AUMs were converted from steer/yearling AUMs of use to AUMs of cow/calf use which should be more comparable to the other years of use by cow/calf pairs. The steer/yearling AUMs were reduced by 25% to approximate use by cow/calf pairs. Conversely, the carrying capacity/grazing capacity for steers/yearlings would then be approximately 25% higher than cow/calf pairs.